

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
10 June 2004 (10.06.2004)

PCT

(10) International Publication Number
WO 2004/048511 A3

(51) International Patent Classification⁷: **G01N 33/48**

[IL/IL]; Rosetta Genomics Ltd., 10 Plaut Street., 76706 Rehovot (IL).

(21) International Application Number:
PCT/IL2003/000998

(22) International Filing Date:
26 November 2003 (26.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

10/308,778	26 November 2002 (26.11.2002)	US
10/310,188	5 December 2002 (05.12.2002)	US
60/441,241	17 January 2003 (17.01.2003)	US
60/411,230	17 January 2003 (17.01.2003)	US
60/457,788	27 March 2003 (27.03.2003)	US
10/604,945	27 August 2003 (27.08.2003)	US
10/604,942	27 August 2003 (27.08.2003)	US
10/604,943	28 August 2003 (28.08.2003)	US
10/604,944	28 August 2003 (28.08.2003)	US
10/604,984	29 August 2003 (29.08.2003)	US
10/605,838	30 October 2003 (30.10.2003)	US
10/605,840	30 October 2003 (30.10.2003)	US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- with sequence listing part of description published separately in electronic form and available upon request from the International Bureau

(71) Applicant (*for all designated States except US*):
ROSETTA GENOMICS LTD. [IL/IL]; 10 Plaut Street.,
76706 Rehovot (IL).

(88) Date of publication of the international search report:
15 December 2005

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): **BENTWICH, Itzhak**

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: BIOINFORMATICALLY DETECTABLE GROUP OF NOVEL VIRAL REGULATORY GENES AND USES THEREOF

(57) Abstract: The present invention relates to a first group of novel genes, here identified as genomic address messenger or VGAM genes, and a second group of novel operon-like genes, here identified as viral genomic record or VGR genes. VGAM genes selectively inhibit translation of known 'target' genes, many of which are known to be involved in various diseases. Nucleic acid molecules are provided respectively encoding 1560 VGAM genes, and 205 VGR genes, as are vectors and probes both comprising the nucleic acid molecules, and methods and systems for detecting VGAM and VGR genes and specific functions and utilities thereof, for detecting expression of VGAM and VGR genes, and for selectively enhancing and selectively inhibiting translation of the respective target genes thereof.



WO 2004/048511 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL03/00998

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01N 33/48

US CL : 702/19

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 702/19

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JACQUE et al. Modulation of HIV-1 replication by RNA interference. Nature. 25 July 2002, Vol. 418, pages 435/438, see entire document.	1-20
A	GITLIN et al. Short interfering RNA confers intracellular antiviral immunity in human cells. Nature. 25 July 2002, Vol. 418, pages 430-435.	1-20
A	XU et al. The Drosophila MicroRNA Mir-14 Suppresses Cell Death and Is Required for Normal Fat Metabolism. Current Biology. 29 April 2003, Vol. 13, pages 790-795.	1-20
A	OMOTO et al. HIV-1 ner suppression by virally encoded microRNA. Retrovirology. December 2004, Vol. 1, pages 44-55.	1-20
A	LU et al. Adenovirus VAI Noncoding RNA Can Inhibit Small Interfering RNA and MicroRNA Biogenesis. Journal Virology. December 2004, Vol. 78, No. 23, pages 12868-12876.	1-20
A	AMBROS, V. microRNAs: Tiny Regulators with Great Potential. Cell. 28 December 2001, Vol. 107, pages 823-826.	1-20
A	LIM et al. Microarray analysis shows that some microRNAs downregulate large numbers of target mRNAs. Nature February 2005, Vol. 433, pages 769-773.	1-20

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

18 October 2005 (18.10.2005)

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Date of mailing of the international search report

04 NOV 2005

Authorized officer

Shou (Joe) Zhou

Telephone No.

571-272-1600

INTERNATIONAL SEARCH REPORT

PCT/IL03/00998

Continuation of B. FIELDS SEARCHED Item 3:

MEDLINE, BIOSIS, BIOTECHDS, CAPLUS, EMBASE, USPAT, US-PGPUB, EPO, JPO, DERWENT, Google/Scholar